REMARKS

At the outset, the Examiner is thanked for the thorough review and consideration of the pending application. The Office Action dated February 23, 2011 has been received and its contents carefully reviewed.

Claims 6 and 15 are amended to correct minor informalities. No new matter has been added. Accordingly, claims 6, 8, and 11-18 are currently pending. Reexamination and reconsideration of the pending claims are respectfully requested.

The Office Action rejects claims 6, 8, and 13-18 under 35 U.S.C. §103(a) as being unpatentable over U.S. 5,760,097 to Li et al. (*Li*). Applicants respectfully traverse the rejection.

To establish *prima facie* obviousness of a claimed invention, all the elements of the claim must be taught or suggested by the prior art. *Li* fails to teach or suggest all the elements of claims 6, 8, and 13-18, and thus cannot render these claims obvious.

Claim 6 recites, "the hydrocarbon copolymer … exhibits a density at least equal to 6 mg/cm^3 and at most equal to 20 mg/cm^3." *Li* fails to teach or suggest at least this element of claim 6. Instead, *Li* discloses that the density of the microbeads is less than 0.04 gm/ml or between 0.06 and 0.07 gm/ml. *Li* fails to teach or suggest "a density at least equal to 6 mg/cm^3 and at most equal to 20 mg/cm^3."

Claim 6 also recites, "providing an organic phase comprising styrene monomers, divinylbenzene monomers and sorbitan monooleate in **ethylbenzene**." *Li* fails to teach or suggest at least this element of claim 6. Instead, *Li* discloses that "[s]uitable porogens include dodecane, toluene, cyclohexanol, n-heptane, isooctane, and petroleum ether" and "[a] preferred porogen is dodecane." *Li*, column 6, lines 36-39. In fact, Examples 1-12 in *Li* all use dodecane, which is a different solvent than ethylbenzene.

Claim 6 further recites, "the volume of the aqueous phase representing at least 96% of the total volume of the two phases." The present application explains that "a pore-forming agent, in the case in point ethylbenzene, which, at the same time, is a solvent for the styrenic monomers without being a solvent for the resulting polymer … the joint use of [ethylbenzene]

has provided to make it possible to prepare a very concentrated emulsion, that is to say an emulsion in which the dispersed aqueous phase represents at least 96% of the total volume of this emulsion." *Specification*, page 4, lines 15-28. *Li* fails to teach or suggest at least this element of claim 6. Instead, *Li* discloses that the volume of water in HIPE (ml)(%) is actually from 70-95%. See, *Li*, Table 1. *Li* also does not teach how to obtain an emulsion in which the dispersed aqueous phase represents **at least 96%** of the total volume of this emulsion.

Accordingly, claim 6 is allowable over *Li*. Claims 8 and 13-18 variously depend from claim 1, and are also allowable for at least the same reasons as claim 6. Applicants therefore respectfully request withdrawal of the 35 U.S.C. §103(a) rejection of claims 6, 8, and 13-18.

The Office Action rejects claims 6, 8, and 11-18 under 35 U.S.C. §103(a) as being unpatentable over *Li* in view of U.S. Patent Application Publication No. 2003/0091610 to Hird et al. (*Hird*) and U.S. Patent Application Publication No. 2003/0134918 to Ko et al. (*Ko*), as evidence by U.S. Patent No. 5,633,220 to Cawiezel et al. (*Cawiezel*). Applicants respectfully traverse the rejection.

As discussed above, *Li* fails to teach or suggest at least the above-recited elements of claim 6, namely, "the hydrocarbon copolymer … exhibits a density at least equal to 6 mg/cm^3 and at most equal to 20 mg/cm^3," "providing an organic phase comprising styrene monomers, divinylbenzene monomers and sorbitan monooleate in ethylbenzene," and "the volume of the aqueous phase representing at least 96% of the total volume of the two phases."

Hird, *Ko*, and *Cawiezel* fail to cure the deficiency of *Li*. *Hird*, *Ko*, and *Cawiezel* are all silent with respect to the above-recited elements of claim 6. See, Amendment After Final, filed November 10, 2010. Accordingly, claim 6 is allowable over the combined teaching of *Li*, *Hird*, *Ko*, and *Cawiezel*. Claims 8 and 11-18 variously depend from claim 6, and are also allowable for at least the same reasons as claim 6.

Furthermore, the solid polymer foams prepared according to the claimed invention show unexpected results. Specifically, the inventors have set the goal of "providing 'polyHIPE' foams having the lowest possible density and, for this density, the lowest possible mean cell

diameter, while exhibiting a satisfactory mechanical strength which allows them to be formed by mechanical machining (for example turning) or by laser." *Specification*, page 2, line 29, to page 3, line 4. The inventors achieved these goals by providing "a 'polyHIPE' foam which is formed from a crosslinked, exclusively hydrocarbon, polymer based on styrenic monomers and which exhibits a density at least equal to 20 mg/cm^3 and cells with a mean diameter at most equal to 20 microns." *Specification*, page 3, lines 13-18. These unexpected results serve as further evidence that one of ordinary skill in the art would not have considered it obvious to combine the four references (*Li*, *Hird*, *Ko*, and *Cawiezel*) to arrive at the claimed invention.

Applicants therefore respectfully request withdrawal of the 35 U.S.C. §103(a) rejection of claims 6, 8, and 11-18.

The Office Action rejects claims 14 and 15 under 35 U.S.C. §103(a) as being unpatentable over *Li* in view of U.S. Patent Application Publication No. 2003/0036575 to Sasabe et al. (*Sasabe*), as evidence by Lenntech/Deionized water, Water Treatment Handbook, 6th Edition, 1991 (*Handbook*).

Claims 14 and 15 variously depend from claim 6, and incorporate all the elements of claim 6. As discussed, *Li* fails to teach or suggest at least the above-recited elements of claim 6. *Sasabe* and *Handbook* do not cure the deficiency of *Li*, as *Sasabe* and *Handbook* are also silent with respect to the above-recited elements of claim 6. Accordingly, claim 6 and its dependent claims 14 and 15 are allowable over *Li*, *Sasabe*, and *Handbook*. Applicants therefore respectfully request withdrawal of the 35 U.S.C. §103(a) rejection of claims 14 and 15.

The Office Action rejects claims 14 and 15 under 35 U.S.C. §103(a) as being unpatentable over *Li* in view of *Hird*, *Ko*, and *Cawiezel*, and further in view of *Sasabe* and *Handbook*.

Claims 14 and 15 variously depend from claim 6, and incorporate all the elements of claim 6. As discussed, the combined teaching of *Li*, *Hird*, *Ko*, and *Cawiezel* fails to teach or suggest at least the above-recited elements of claim 6. *Sasabe* and *Handbook* do not cure the deficiency of *Li*, as *Sasabe* and *Handbook* are also silent with respect to the above-recited elements of claim 6. Accordingly, claim 6 and its dependent claims 14 and 15 are allowable

over *Li*, *Hird*, *Ko*, *Cawiezel*, *Sasabe*, and *Handbook*. Applicants therefore respectfully request withdrawal of the 35 U.S.C. §103(a) rejection of claims 14 and 15.

The Office Action rejects claim 11 under 35 U.S.C. §103(a) as being unpatentable over *Li*, *Hird*, *Ko*, and *Cawiezel*, and further in view of U.S. Patent No. 6,303,834 to Mork et al. (*Mork*). Applicants respectfully traverse the rejection.

Claim 11 depends from claim 6, and incorporate all the elements of claim 6. As discussed, the combined teaching of *Li*, *Hird*, *Ko*, and *Cawiezel* fails to teach or suggest at least the above-recited elements of claim 6. *Mork* is also silent with respect to the above-recited element of claim 6. Accordingly, claim 6 and its dependent claim 11 are allowable over *Li*, *Hird*, *Ko*, *Cawiezel*, and *Mork*. Applicants therefore respectfully request withdrawal of the 35 U.S.C. §103(a) rejection of claim 11.

Applicants believe the application is in condition for allowance and early, favorable action is respectfully solicited. If for any reason the Examiner finds the application other than in condition for allowance, the Examiner is requested to call the undersigned attorney at (202) 496-7500 to discuss the steps necessary for placing the application in condition for allowance. All correspondence should continue to be sent to the below-listed address.

If these papers are not considered timely filed by the Patent and Trademark Office, then a petition is hereby made under 37 C.F.R. §1.136, and any additional fees required under 37 C.F.R. §1.136 for any necessary extension of time, or any other fees required to complete the filing of this response, may be charged to Deposit Account No. 50-0911. Please credit any overpayment to deposit Account No. 50-0911.

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